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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,405	09/16/2003	Javit A. Drake	08935-299001 / M-5033	3194
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EXAMINER				
HODGE, ROBERT W				
ART UNIT		PAPER NUMBER		
1795				
NOTIFICATION DATE		DELIVERY MODE		
08/12/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

### Office Action Summary

**Application No.**

10/664,405

**Applicant(s)**

DRAKE ET AL.

**Examiner**

ROBERT HODGE

**Art Unit**

1795

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 June 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 and 14-22 is/are pending in the application.
- 4a) Of the above claim(s) 2-7 and 18-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,8-12 and 14-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-06)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Arguments***

Applicant's arguments with respect to claims 1, 8-12 and 14-17 have been considered but are moot in view of the new ground(s) of rejection.

Regarding the Obviousness type Double Patenting rejection, applicants' arguments are not persuasive for reasons already made of record and the fact that open claim language has been used in both the instant application and copending application No. 10/664,818.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,338,907 hereinafter Lindbeck.

As seen in figure 1, Lindbeck teaches a fuel cartridge 10 comprising a housing 12, a fuel egress port 24 supported by the housing, and a resistive heating element 28 disposed in the fuel egress port, wherein the resistive heating element is a wire that is disposed in thermal communication with the interior of the cartridge and it spaces a vapor portion of the cartridge (column 3, line 26 – column 4, line 9).

Regarding claim 8:

"Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim." *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969). Furthermore, "[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." *In re Young*, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

Therefore no patentable weight has been given to the use of the fuel cartridge or the contents contained therein, see MPEP 2115.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lindbeck as applied to claim 1 above, and further in view of U.S. Pre-Grant Publication No. 2005/0031522 hereinafter Delaney.

Assuming *arguendo* that patentable weight is given to the intended use and the material worked upon in claim 8, Lindbeck teaches that the liquid fuel in the fuel cartridge is vaporized and the liquid fuel can be a hydrocarbon such as gasoline (see citations above).

Delaney teaches that hydrocarbon direct fuel cells use methanol, ethanol, diesel and/or gasoline as fuel.

Therefore it would have been obvious at the time of the invention to one having ordinary skill in the art to feed the vaporized gasoline from the fuel cartridge of Lindbeck to a hydrocarbon direct fuel cell as taught by Delaney since the claimed subject matter

merely combines familiar elements (feeding a hydrocarbon such as gasoline to a hydrocarbon direct fuel cell that uses gasoline as a fuel) according to known methods and does no more than yield predictable results. See MPEP 2141 (III) Rationale A, KSR v. Teleflex (Supreme Court 2007).

Claims 12, 14, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,506,513 hereinafter Yonetsu in view of GB 2 263 501 hereinafter Tsoi-Hei.

As seen in the figures, Yonetsu teaches a fuel cartridge, that is prismatic in shape, having a housing 1, a fuel egress port 3 that contains a heat producing element "a" (i.e. porous carbon vaporizing plate, Figure 2, column 13, lines 16-20), which is also in the interior of the cartridge (figures 13-14B) and spaces a vapor portion of the cartridge from a liquid reservoir of the cartridge, a bladder 16 (figure 7B) that holds a liquid fuel 7 such as methanol (column 5, lines 4-8) that is supplied to a direct methanol fuel cell 2 (column 2, line 34 – column 3, line 19, column 4, line 26 – column 5, line 35 and column 7, line 47 – column 7 line 62).

Furthermore in column 4, line 50 Yonetsu clearly discloses that the pathway 3 is filled with a porous material through which the liquid fuel permeates (also called a fine tube that performs capillary function as admitted to by Applicants in the Remarks field 11/4/09) and the porous material is in fluid communication and fluidly connected to the liquid fuel holding material called a receiver 5, where the fuel is vaporized before entering the unit cell. Therefore the entire path that the fuel flows through before it is vaporized at the vaporization plate "a" is considered the "egress port" and since the

receiver 5 is completely disposed on the vaporization plate "a" the vaporization plate "a" is disposed in the path of the fuel being supplied and is therefore "disposed in the fuel egress port" as recited in instant claim 1.

Yonetsu further teaches in figure 7A a piston 30 (i.e. fuel sealing part) urged against the fuel via spring 14 (column 7, lines 48-62).

Yonetsu does not teach the piston and the bladder in the same embodiment.

At the time of the invention it would have been obvious to one having ordinary skill in the art to combine the embodiments of figures 7A and 7B of Yonetsu in order to provide a fuel cartridge with multiple solutions for properly containing the methanol fuel as well as providing sufficient means to push out the fuel through the fuel outlet port thereby providing the necessary fuel to the fuel cell in order for the fuel cell to operate. The above combination such as a piston urged against a bladder, according to known methods by Yonetsu yields the predictable result of providing a sufficient means to push out the fuel through the fuel outlet port thereby providing the necessary fuel to the fuel cell in order for the fuel cell to operate. See MPEP 2141 (III) Rationale A, KSR v. Teleflex (Supreme Court 2007). See also Boston Scientific Inc. v. Cordis Corp. (Fed. Cir. 2009) 89 USPQ2d 1704.

Yonetsu does not teach that the porous carbon vaporization plate is a resistive heating element.

Tsoi-Hei teaches a porous carbon heating element 22 (i.e. resistive heating element) that is connected to two electrodes 18a and 18b, which supply the porous carbon heating element electrical current that causes the porous carbon heating

element to produce heat and to vaporize liquid fuel that is supplied to the porous carbon heating element (page 4, line 26 – page 5, line 6 and page 6, lines 6-30).

At the time of the invention it would have been obvious to one having ordinary skill in the art to use a porous carbon heating element in place of the porous carbon vaporization plate in Yonetsu as taught by Tsoi-Hei in order to provide a vaporizer that provides a well prepared charge, stores a minimal amount of fuel, permits accurate fuel metering and that minimizes the effect of wall wetting, thereby enabling a completely vaporized fuel stream to the fuel cell that is subsequently preheated that will not lower the temperature of the fuel cell when it is supplied to the fuel cell such that the fuel cell will operate at its optimal operating temperature. Simple substitution of one known element (a porous carbon heating element) for another (a porous carbon vaporizing plate) would achieve the predictable results of providing a vaporizer provides a well prepared charge, stores a minimal amount of fuel, permits accurate fuel metering and that minimizes the effect of wall wetting, thereby enabling a completely vaporized fuel stream to the fuel cell that is subsequently preheated that will not lower the temperature of the fuel cell when it is supplied to the fuel cell such that the fuel cell will operate at its optimal operating temperature. See MPEP 2141 (III) Rationale B, KSR v. Teleflex (Supreme Court 2007).

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yonetsu in view of Tsoi-Hei as applied to claim 12 above, and further in view of Gore.

Yonetsu does not teach a battery to power the heat-producing element.

As seen in figures 2 and 2A-2C, Gore teaches a fuel cartridge 206 having a housing 230, a heat producing element (i.e. wire) 208, disposed in the cartridge and in thermal communication with the cartridge (paragraphs [0039]-[0051]). Gore further teaches powering the heat-producing element with a battery (paragraph [0031]).

At the time of the invention it would have been obvious to one having ordinary skill in the art to use a battery to power the heat-producing element in the fuel cartridge of Yonetsu as modified by Tsoi-Hei as taught by Gore in order to provide a system that can power the heat-producing element on demand when a sufficient electric load is not available from the fuel cell such as at startup in order to vaporize the methanol in the cartridge before entering the anode of the direct methanol fuel cell of Yonetsu as modified by Tsoi-Hei especially during startup when the fuel cell is cold, so that the rate of reaction can be accelerated in the direct methanol fuel cell of Yonetsu as modified by Tsoi-Hei thus increasing the overall efficiency of the cartridge and fuel cell system of Yonetsu as modified by Tsoi-Hei. If a technique has been used to improve one device (using a battery to power the heat-producing element in a fuel cartridge), and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way (providing a system that can power the heat-producing element on demand when a sufficient electric load is not available from the fuel cell such as at startup in order to vaporize the methanol in the cartridge before entering the anode of the direct methanol fuel cell especially during startup when the fuel cell is cold so that the rate of reaction can be accelerated in the direct methanol fuel cell thus increasing the overall efficiency of the cartridge and fuel cell system), using the technique is obvious unless its



actual application is beyond his or her skill. See MPEP 2141 (III) Rationale C, KSR v. Teleflex (Supreme Court 2007).

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 8, 12 and 17 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 11 and 12 of copending Application No. 10/664,818. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of copending Application No. 10/664,818 fully encompass the scope of instant claims the only difference is the instant claims provide further structure which has been found in the prior art.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT HODGE whose telephone number is (571)272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on (571) 272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert Hodge/  
Primary Examiner, Art Unit 1795